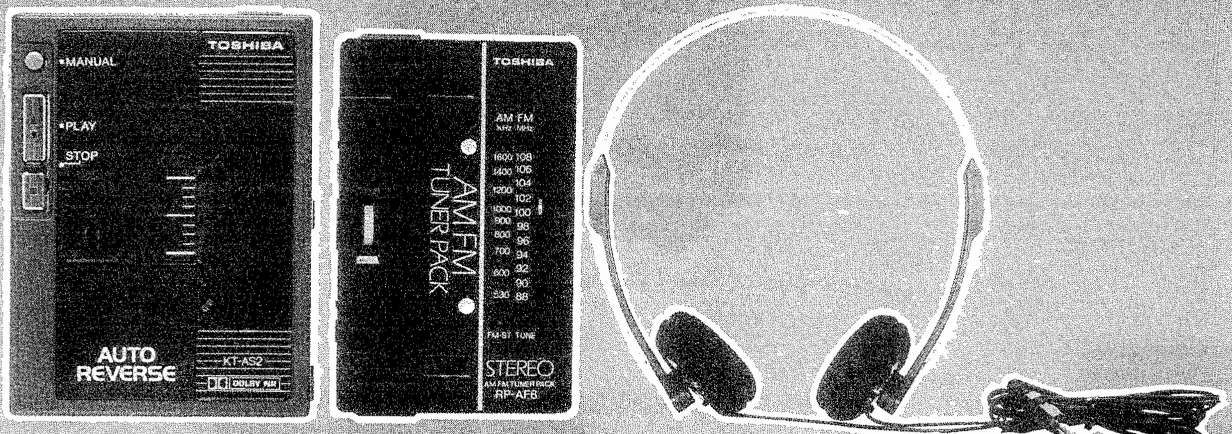
Fach XG, 262

SERVICE DATA
FILE NO. 100-204

TOSHIBA

STEREO CASSETTE PLAYER

KT-AS2 (RP-AF6)


TOSHIBA
MANUAL
PLAY
STOP
AUTO REVERSE
KT-AS2
DOLBY NR
TOSHIBA
AM FM
kHz MHz
1600 108
1400 106
1200 104
102
1000 100
900 98
800 96
700 94
600 92
90
530 88
AM/FM TUNER PACK
FM-ST TUNE
STEREO
AM FM TUNER PACK
RP-AF6

SPECIFICATIONS

■ Tape Section

Track system:	Stereophonic
Recommended tape:	Normal ferric, chrome dioxide, and metal alloy: C-30 to C-120 (Recorded tape)
Tape speed:	4.8 cm/sec.
Frequency response:	Reproduction: 40 Hz to 14 kHz (normal), 40 Hz to 16 kHz (CrO_2, metal)
Output terminals:	3.5mm dia. stereo headphones jack x 1
Maximum output power:	Integration 40mW (20mW +20mW) with 32 ohm load
Power supply:	DC 3V (R6 "AA" x 2) External power source supplied to the [DC IN 3V] jack (3.4mm dia. center contact negative)
Dimensions:	80.5(W) x 108(H) x 29.5(D)mm
Weight:	250 g (without batteries)

■ Tuner Section

Receiving frequency:	FM 88 MHz to 108 MHz AM: 526.5 kHz to 1606.5 kHz

- This FM/AM tuner pack (RP-AF6) is designed exclusively for this unit and KT-VS1, KT-AS1, KT-VS2, KT-RS1, RT-CS1 and is not usable in other types of cassette recorders.

Specifications are subject to change without notice.

TA, TC, AY, TE

PRINTED IN JAPAN 22905330 June, 1984 Ⓢ

1016

1. OPERATING CONTROLS

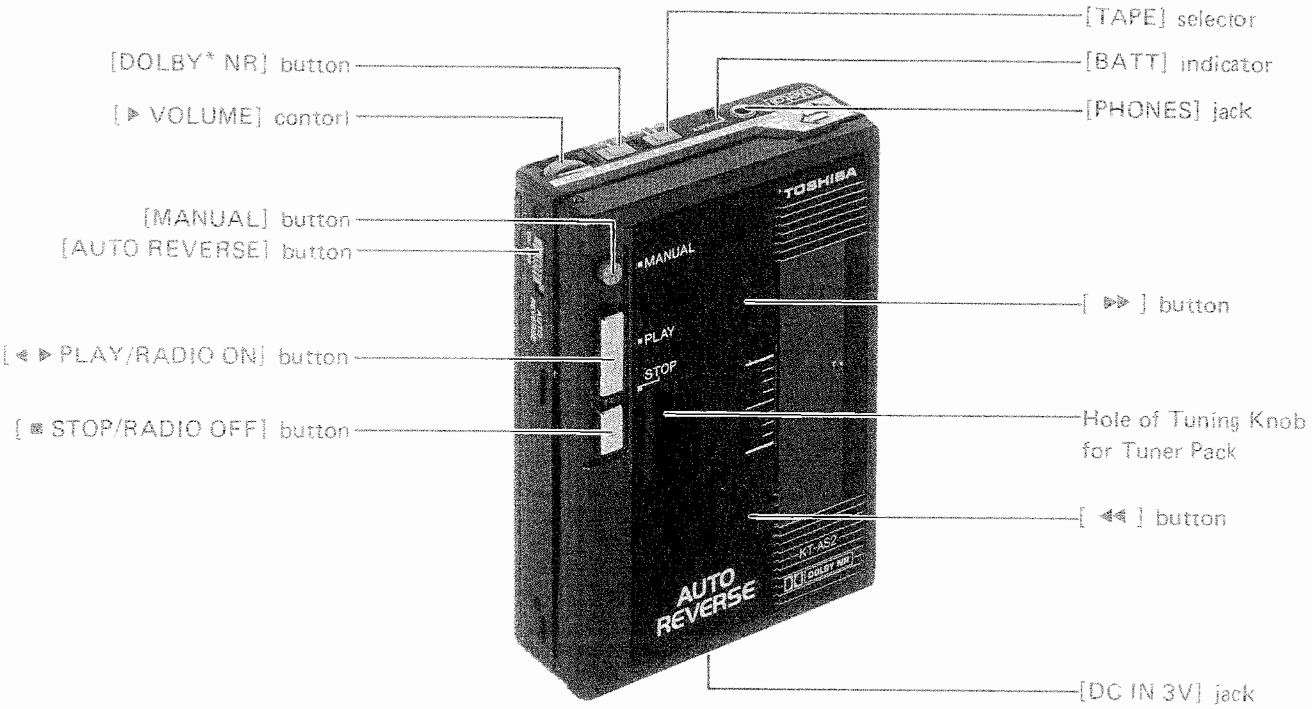

[DOLBY* NR] button
[▶ VOLUME] contorl
[MANUAL] button
[AUTO REVERSE] button
[◀ ▶ PLAY/RADIO ON] button
[■ STOP/RADIO OFF] button
[TAPE] selector
[BATT] indicator
[PHONES] jack
[▶▶] button
Hole of Tuning Knob for Tuner Pack
[◀◀] button
[DC IN 3V] jack
TOSHIBA
MANUAL
PLAY
STOP
AUTO REVERSE
KT-AS2
DOLBY NR

Figure 1

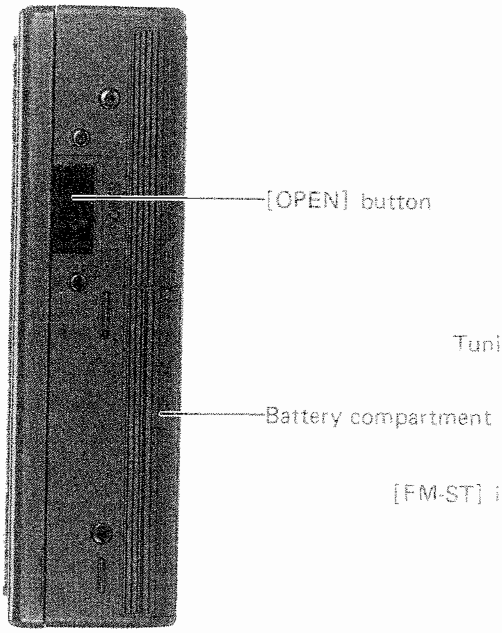

[OPEN] button
Battery compartment

Figure 2

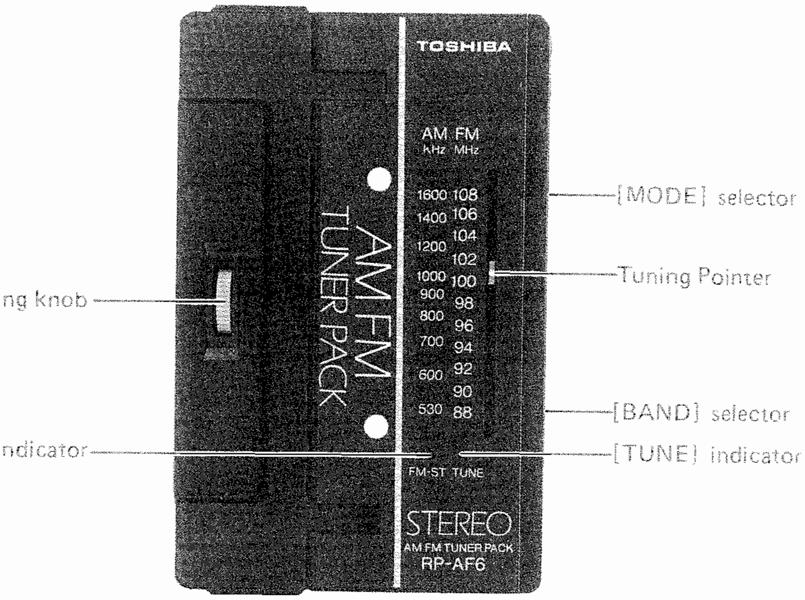
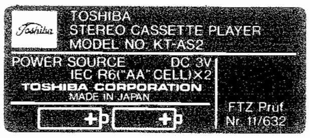

Tuning knob
[FM-ST] indicator
[MODE] selector
Tuning Pointer
[BAND] selector
[TUNE] indicator
TOSHIBA
AM FM TUNER PACK
AM FM
kHz MHz
1600 108
1400 106
104
1200 102
1000 100
900 98
800 96
700 94
600 92
90
530 88
FM-ST TUNE
STEREO
AM FM TUNER PACK
RP-AF6

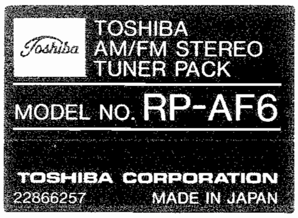
Figure 3

Name Label (KT-AS2)



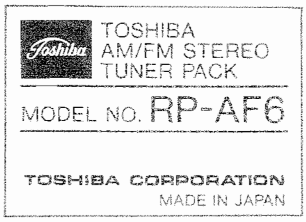
TOSHIBA
STEREO CASSETTE PLAYER
MODEL NO. KT-AS2
POWER SOURCE DC 3V
IEC R6("AA" CELL)×2
TOSHIBA CORPORATION
MADE IN JAPAN
FTZ Pruf
Nr. 11/632

Name Label (RP-AF6)
(TA, TC)



TOSHIBA
AM/FM STEREO
TUNER PACK
MODEL NO. RP-AF6
TOSHIBA CORPORATION
22866257 MADE IN JAPAN

Name Label (RP-AF6)
(TE, AY)



TOSHIBA
AM/FM STEREO
TUNER PACK
MODEL NO. RP-AF6
TOSHIBA CORPORATION
MADE IN JAPAN

— TUNER PACK SECTION —

Removal of Upper Cabinet

1. Remove four screws Ⓕ securing bottom cabinet, and the upper cabinet will be removed.

Access to P.C. Board

1. Remove the upper cabinet.
2. Remove adhesive tape securing AM antenna coil to the bottom cabinet and release the coil, taking care not to broken wire leads connected to the P.C. Baord.
3. The P.C. Board can be opened and accessed. (Refer to "Tuner Pack".)

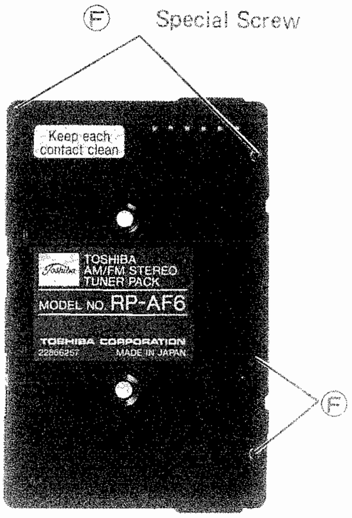

Ⓕ Special Screw
Keep each contact clean
TOSHIBA
AM/FM STEREO
TUNER PACK
MODEL NO. RP-AF6
TOSHIBA CORPORATION
22866257
MADE IN JAPAN
Ⓕ

Figure 9

TUNER PACK INSPECTION

When repairing the tuner pack, inspect it according to the following procedures.

1. Remove two special screws from the front cabinet side of the cassette player and then remove the front. (Figure 10)
2. Load the tuner pack from which the upper cabinet is removed, into the cassette holder. (Figure 11)
3. Set the cassette player and the tuner in the play mode. In this case, insert a insulator packing between the cassette holder and the tuner pack in order for the connector not to detach from the cassette player. (Figure 12)
4. It is possible to inspect the rear side of the P.C. Board as shown in Figure 13.

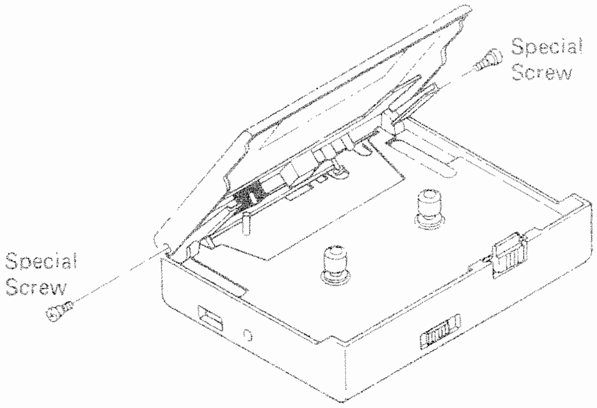

Special Screw
Special Screw

Figure 10

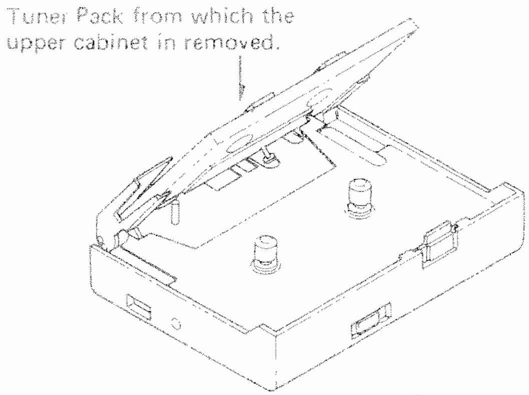

Tuner Pack from which the upper cabinet in removed.

Figure 11

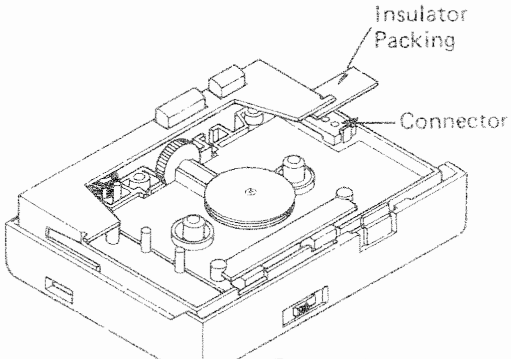

Insulator Packing
Connector

Figure 12

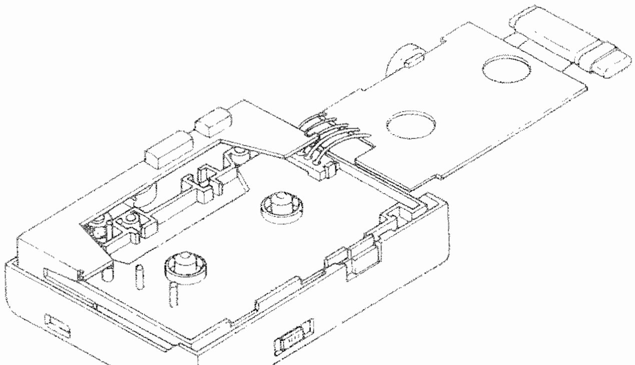


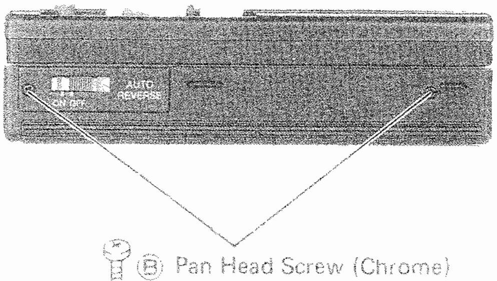
Figure 13

2. DISASSEMBLY INSTRUCTIONS

— CASSETTE PLAYER SECTION —

- **Removal of Front Cabinet**

1. Remove two screws Ⓐ provided at both front cabinet sides and the front cabinet will be removed.
2. Removal of back cabinet
   Remove two screws Ⓑ and two screws Ⓒ securing mechanism assembly to the back cabinet, and the back cabinet will be removed.



Ⓑ Pan Head Screw (Chrome)
1.7φ x 2.5mm

Figure 5

- **Access to Main P.C. Board**

1. Remove the front cabinet
2. Remove the back cabinet.
3. Remove two screws Ⓓ securing the P.C. Board to the mechanism assembly and one screw Ⓔ securing the motor control P.C. Board, and the front side of the main P.C. Board can be checked.

- **Mechanism Assembly Check**

1. The mechanism assembly is provided beneath the main P.C. Board, so open the P.C. Board as started above and then the mechanism can be checked.

CAUTION:
Before returning the unit to the customer, check that the resistance between both blades of AC plug and any accessible metal parts is more than 3MΩ after completion of servicing, using the circuit tester.
(TA Model only)

Ⓐ Special Screw

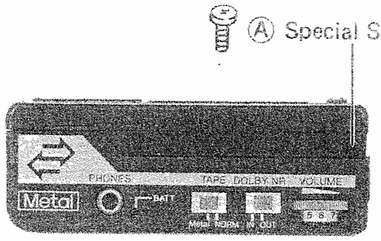


Figure 4

Ⓐ Special Screw

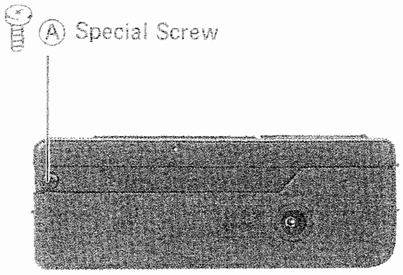
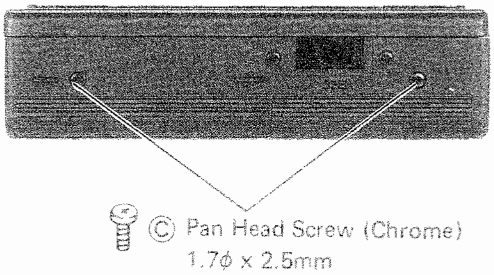
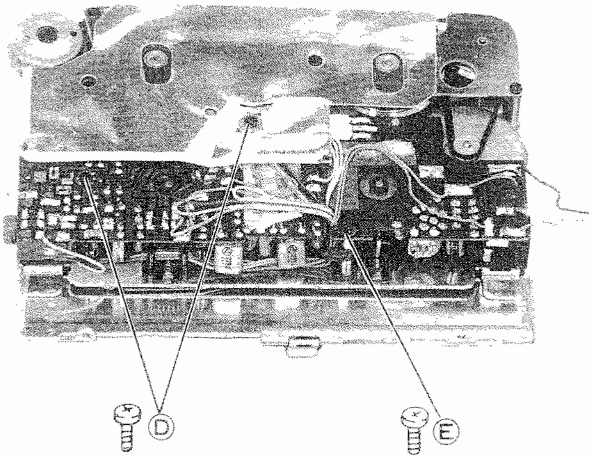


Figure 6



Ⓒ Pan Head Screw (Chrome)
1.7φ x 2.5mm

Figure 7



Ⓓ
Pan Head FL Screw
1.4φ x 3mm

Ⓔ
Pan Head Screw
1.4φ x 2.5mm

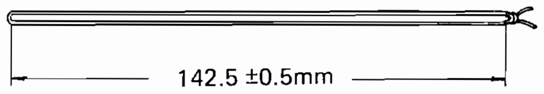
Figure 8

3. DIAL CORD RESTRINGING

- **DIAL CORD STRINGING**

  Replace the dial cord according the following procedures.

  1. Turn the tuning knob counterclockwise fully (to the direction of lower frequency).
  2. Wind the dial cord in numerical order.
  3. Fix the dial pointer on the cord so as to fit the pointer margin to the marking line on the mould frame.



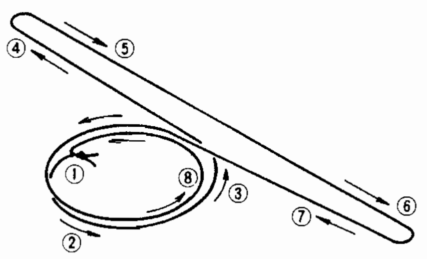


Figure 14

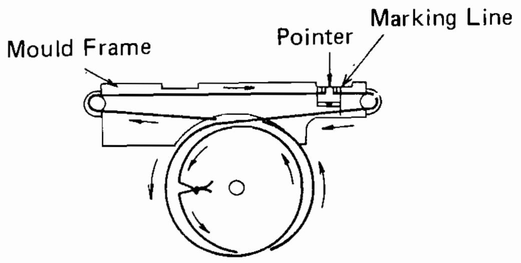

Mould Frame
Pointer
Marking Line

Figure 15

4. CHIP PARTS REPLACEMENTS

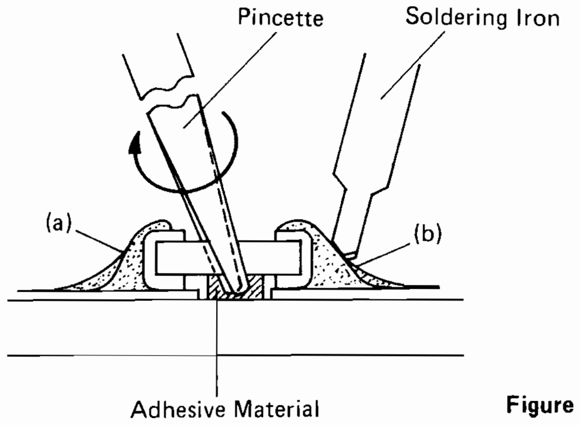

Pincette
Soldering Iron
(a)
(b)
Adhesive Material

Figure 16

Unsoldering ICs and Other Semiconductor Tips

1. Hold the part as its center with pincette, etc. and apply heat at soldered section (a) and (b) alternatively with soldering iron tip. Remove the part by moving it to left and right while the solder does not harden.

2. Cut or broken the part at it center with a diagonal cutter and remove by unsoldering each terminal of the part.

Note: Parts removed by the method 2 above can not be reused. Transistors removed by the method 1 above amy be reused if they are removed carefully with less heat applied.

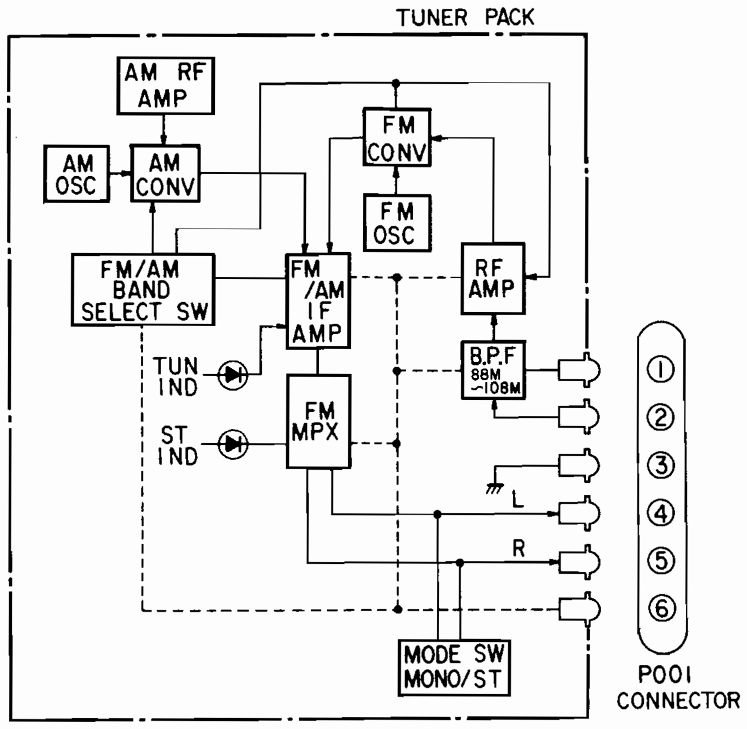
- **Torque**

PLAY : Approx. 28 – 52g.cm
FF : Approx. 60g.cm
REW : Approx. 60g.cm

- **Power Consumption**

TAPE : Approx. 115mA (C-60, center position, vol-min)
FM : Mono approx. 50mA (vol-min)
Stereo approx. 53mA (vol-min)
AM : Approx. 42mA (vol-min)

5. BLOCK DIAGRAM


TUNER PACK
AM RF AMP
AM OSC
AM CONV
FM CONV
FM OSC
FM/AM BAND SELECT SW
FM /AM IF AMP
RF AMP
B.P.F 88M ~108M
TUN IND
ST IND
FM MPX
L
R
MODE SW MONO/ST
①
②
③
④
⑤
⑥
P001 CONNECTOR

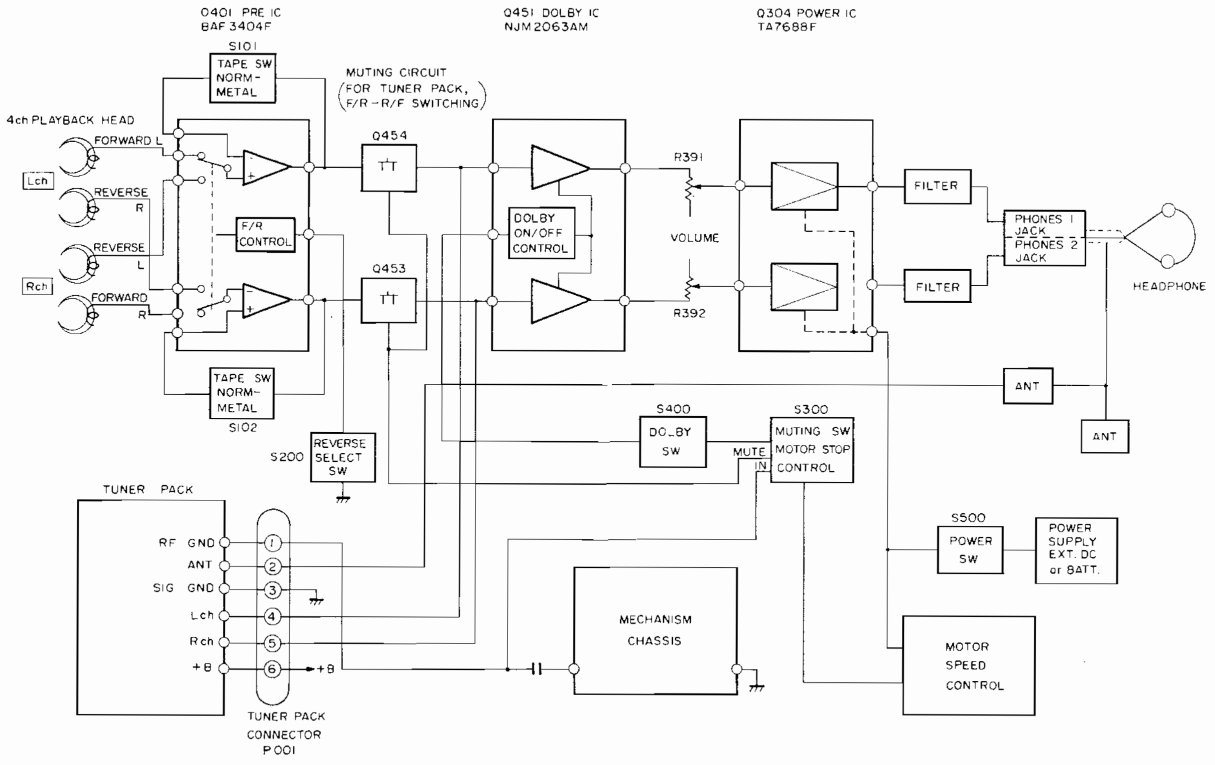

Q401 PRE IC BAF3404F
Q451 DOLBY IC NJM2063AM
Q304 POWER IC TA7688F
S101
TAPE SW NORM-METAL
MUTING CIRCUIT (FOR TUNER PACK, F/R-R/F SWITCHING)
4ch PLAYBACK HEAD
FORWARD L
Lch
REVERSE R
REVERSE L
Rch
FORWARD R
F/R CONTROL
Q454
Q453
DOLBY ON/OFF CONTROL
R391
VOLUME
R392
FILTER
FILTER
PHONES 1 JACK
PHONES 2 JACK
HEADPHONE
TAPE SW NORM-METAL
S102
S200
REVERSE SELECT SW
S400
DOLBY SW
S300
MUTING SW
MOTOR STOP CONTROL
MUTE
IN
ANT
ANT
TUNER PACK
RF GND
ANT
SIG GND
Lch
Rch
+B
①
②
③
④
⑤
⑥
+B
TUNER PACK CONNECTOR P001
MECHANISM CHASSIS
S500
POWER SW
POWER SUPPLY EXT. DC or BATT.
MOTOR SPEED CONTROL

Figure 17

4. ALIGNMENT INSTRUCTIONS

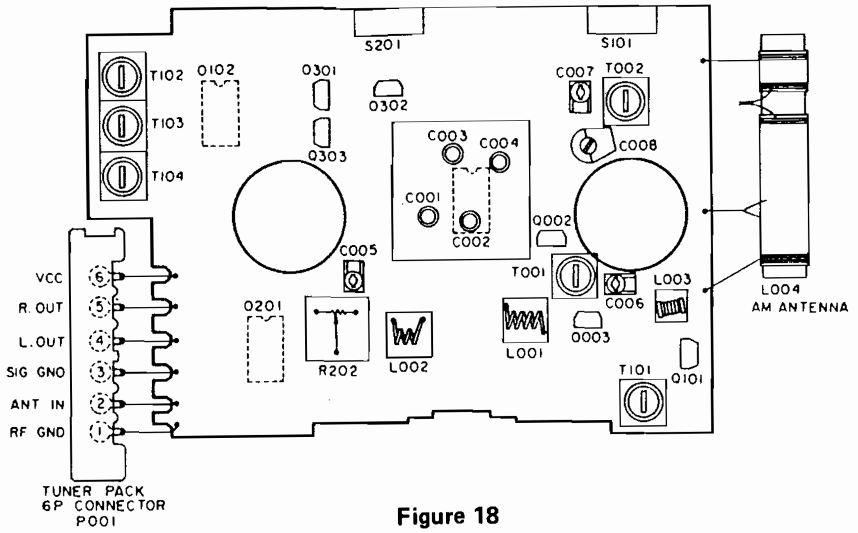

S201
S101
T102
T103
T104
0102
0301
0302
0303
C007
T002
C008
C003
C004
C001
C002
Q002
C005
T001
C006
L003
L004
AM ANTENNA
VCC
R. OUT
L. OUT
SIG GND
ANT IN
RF GND
0201
R202
L002
L001
0003
T101
Q101
TUNER PACK
6P CONNECTOR
P001

Figure 18

AM-IF ALIGNMENT

1. Turn on both sweep generator and oscilloscope, and allow a fifteen-minute warm-up period.
2. Connect the RF SWEEP SIGNAL OUTPUT from the signal generator through the loop antenna to the receiver.
3. Connect the oscilloscope vertical input directly to the test point L or R and connect the shielded lead to the test point Earth.
4. Connect the SWEEP VOLTAGE OUTPUT of the sweep generator to the oscilloscope.
5. Proceed as outlined in the AM-IF ALIGNMENT CHART.

AM-IF ALIGNMENT CHART

Step	Signal Coupling	Equip.	Tuning	Connection	Adjust. Point	Pattern
1	Connect sweep generator output to a loop antenna.	Sweep generator of 455 kHz center freq. with 455 kHz marker.	Tuning Knob fully counter-clockwise (Highest Frequency.)	Set scope for connecting output signal from TUN OUT to vertical axis of scope "V" and sweep generator output to horizontal axis "H"	T102 T104	Adjust coil T102 and T104 until the best single peak is obtained.

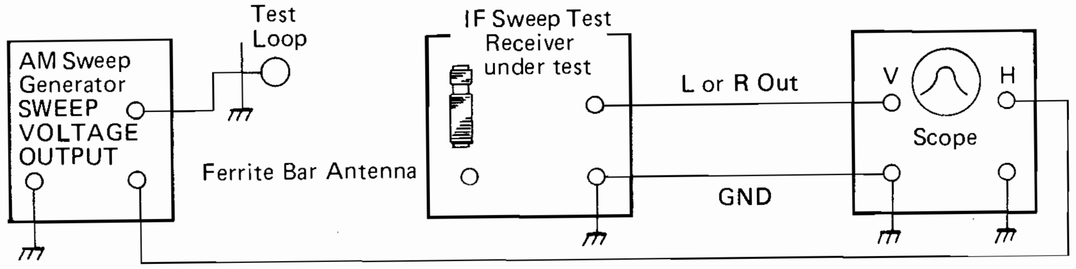

AM Sweep Generator SWEEP VOLTAGE OUTPUT
Test Loop
IF Sweep Test Receiver under test
Ferrite Bar Antenna
L or R Out
GND
V
H
Scope

Figure 19

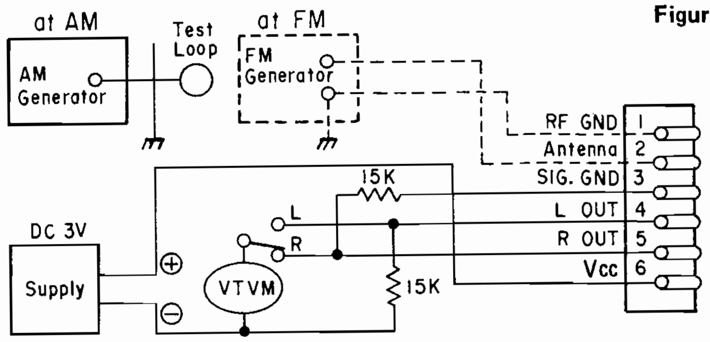

at AM
AM Generator
Test Loop
at FM
FM Generator
RF GND 1
Antenna 2
SIG. GND 3
L OUT 4
R OUT 5
Vcc 6
15K
15K
L
R
DC 3V
Supply
VTVM

Figure 20

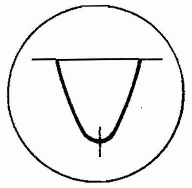


Figure 21

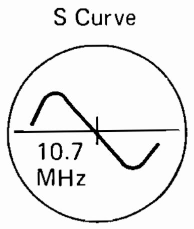

S Curve
10.7 MHz

Figure 22

AM ALIGNMENT

1. Turn on the signal generator and the VTVM, and allow a fifteen-minute warm-up period.
2. Using the test loop across the output of the signal generator, inductively connect the signal generator to the radio.
3. Connect the VTVM across a 15K ohm dummy load.
4. Adjust the signal generator frequency as indicated in FM-RF ALIGNMENT CHART, and maintain a sufficient signal output level to provide a measurable indication.
5. Proceed as outlined in the FM-RF ALIGNMENT CHART.

AM ALIGNMENT CHART

Step	Signal Generator	Radio Dial Setting	Adjustment	Remarks
1	520 kHz	Tuning Knob fully Counterclockwise (Lowest Frequency)	OSC. Coil T102	Adjust for maximum output indication.
2	1650 kHz	Tuning Knob fully Clockwise (Highest Frequency)	OSC. Trim C007	Adjust for maximum output indication.
3	Repeat steps 1 and 2 as required.			
4	600 kHz	Tune to signal.	Ant. Coil L004	Adjust for maximum output indication.
5	1400 kHz		Ant. Trim. C008	
6	Repeat steps 4 and 5 as required.			

FM-IF ALIGNMENT

1. Turn on both sweep generator and oscilloscope, and allow a fifteen-minute warm-up period.
2. Connect the RF SWEEP SIGNAL OUTPUT from the signal generator through the loop antenna to the receiver.
3. Connect the oscilloscope vertical input directly to the test point L or R and connect the shielded load to the test point Earth.
4. Connect the SWEEP VOLTAGE OUTPUT of the sweep generator to the oscilloscope.
5. Process as outlined in the FM-IF ALIGNMENT CHART.

FM-IF ALIGNMENT CHART

Step	Signal coupling	Equip.	Tuning	Connection	Adjust. point	Pattern
1	Connect sweep generator output to a three-turn loop antenna of 10 cm diameter.	Sweep generator of 10.7 MHz center freq. with 10.7 MHz meter.	Tuning Knob fully counter-clockwise (Highest Frequency)	Set scope for connecting output signal from TUN OUT to vertical axis of scope "V" sweep generator output to horizontal axis "H".	T101 T103	Turn the coil T103 fully counterclockwise to obtain a single peak. Fig. 21 Adjust coil T101 in order until the best single peak is obtained. Finally turn the coil T103 to obtain S curve. Fig. 22

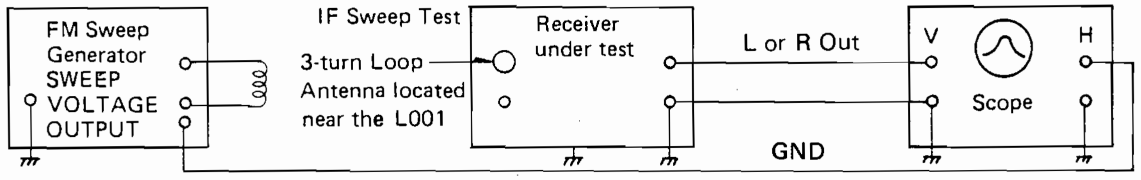

FM Sweep Generator SWEEP VOLTAGE OUTPUT
IF Sweep Test
3-turn Loop Antenna located near the L001
Receiver under test
L or R Out
GND
V
H
Scope

Figure 23

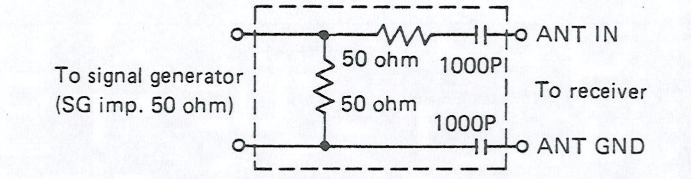
FM-RF ALIGNMENT

1. Turn on the signal generator and the VTVM, and allow a fifteen-minute warm-up period.
2. Connect the signal generator output through a 75 ohm dummy antenna across FM ANT.
3. Connect the VTVM across a 15K ohm dummy load.
4. Adjust the signal generator frequency as indicated in FM-RF ALIGNMENT CHART, and maintain a sufficient signal output level to provide a measurable indication.
5. Proceed as outlined in the FM-RF ALIGNMENT CHART.

FM-RF ALIGNMENT CHART

Step	Signal Generator	Radio Dial Setting	Adjustment	Remarks
1	87.5 MHz	Tuning Knob fully Counterclockwise (Lowest Frequency)	OSC. Coil L002	Adjust for maximum output indication.
2	108 MHz	Tuning Knob fully Clockwise (Highest Frequency)	OSC. Trim C005	Adjust for maximum output indication.
3	Repeat steps 1 and 2 as required.			
4	90 MHz	Tune to signal.	RF Coil L001	Adjust for maximum output indication.
5	106 MHz		Ant. Trim. C006	
6	Repeat steps 4 and 5 as required.			

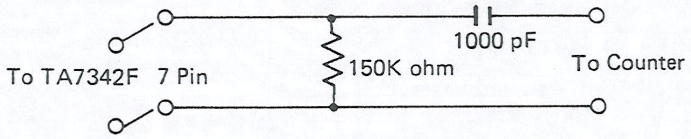
CAUTION: When realigning the FM Receiving Frequency, the highest end of the frequency range should not be more than 108 MHz and the lowest end of the frequency range should not be less than 87.5 MHz, in order to comply with FTZ regulations in West Germany.


ANT IN
50 ohm
1000PF
To signal generator
(SG imp. 50 ohm)
50 ohm
To receiver
1000P
ANT GND

75 ohm dummy antenna

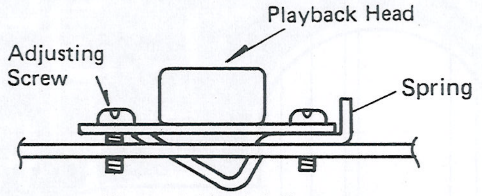
FREE RUN FREQUENCY ALIGNMENT

Adjust R202 under no signal condition so as to obtain 76 kHz ±150 Hz.


1000 pF
To TA7342F 7 Pin
150K ohm
To Counter

PLAYBACK HEAD ADJUSTMENT

A 6.3 kHz standard tape must be used for this adjustment. Connect a VTVM or an oscilloscope to the Headphone jack and adjust the azimuth by using a phillips screwdriver to maintain the maximum output voltage. Fig. 24


Playback Head
Adjusting Screw
Spring

Playback Head Adjustment

Figure 24

DOLBY LEVEL ADJUSTMENT

1. Preliminary Work
   1) Place function switch in "NORMAL" position.
   2) Place Dolby switch in "IN" position.
   3) Load MTT-150 (ATT-150) 400 Hz test tape.
   4) Connect a lead (terminated with alligator clip) of VTVM to Dolby output terminal and another lead to chassis ground.
2. Level Adjustment
   1) Playback the test tape.
   2) Adjust trimming pot semi-fixed resistor R491 (Lch), R492 (Rch) until output reading of 100mV ±8mV is obtained on the level meter, using alignment driver. (Proceed this alignment for both left and right channels.)

Note: When connecting alligator clip to the output terminal, clip it to a lead of C457 (Lch), C458 (Rch) (film type capacitor).

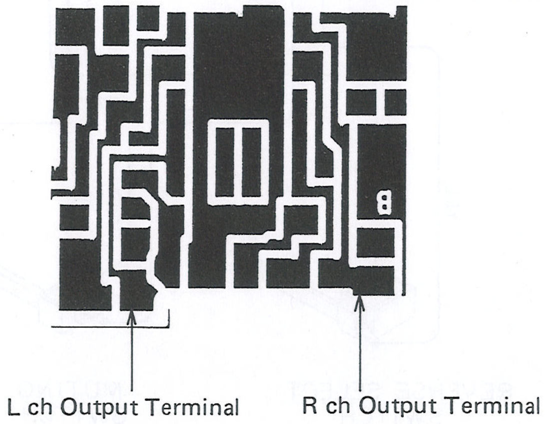
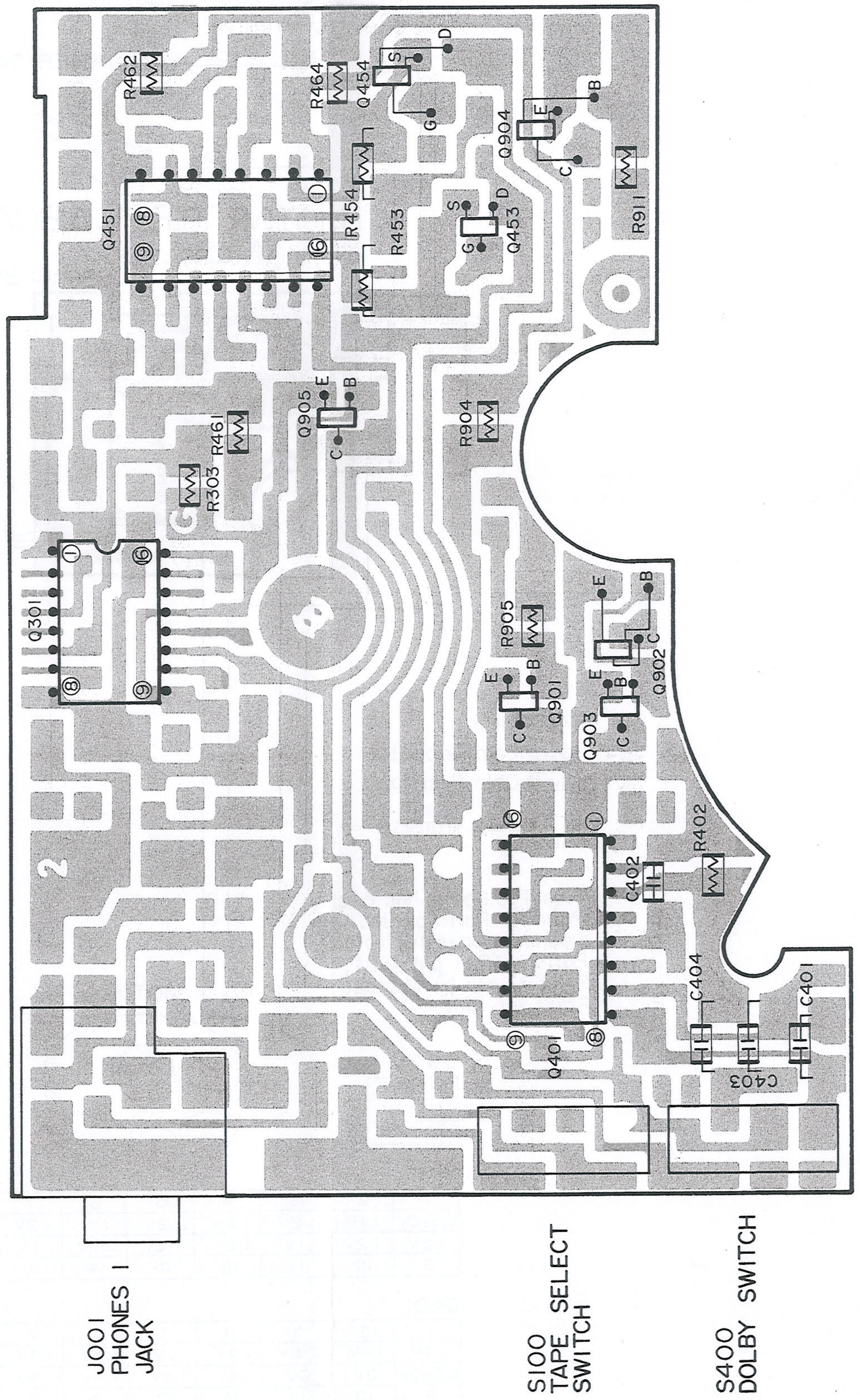

B
L ch Output Terminal
R ch Output Terminal

Figure 25

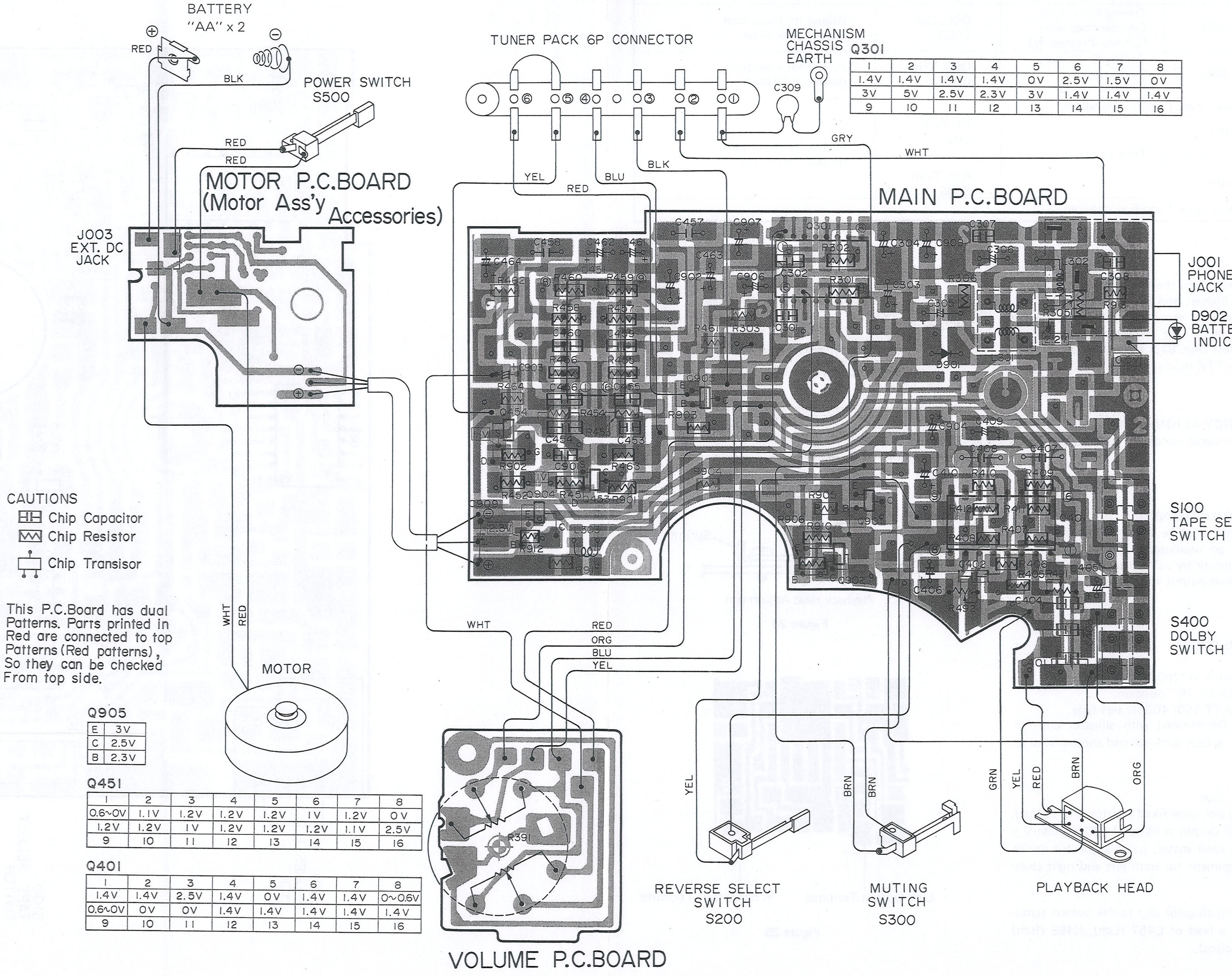
7-1. ELECTRICAL PARTS LOCATIONS

—CASSETTE PLAYER SECTION TOP VIEW—


R462
R464
Q454
D
S
G
Q904
E
B
C
R911
Q451
⑧
⑨
①
⑯
R454
R453
Q453
Q905
R461
R904
R303
Q301
R905
Q901
Q902
Q903
2
R402
C402
C404
C401
C403
Q401
J001 PHONES JACK
S100 TAPE SELECT SWITCH
S400 DOLBY SWITCH

7-2. ELECTRICAL PARTS LOCATIONS

—CASSETTE PLAYER SECTION—


BATTERY
"AA" x 2
⊕
⊖
RED
BLK
POWER SWITCH
S500
RED
RED
MOTOR P.C.BOARD
(Motor Ass'y Accessories)
J003
EXT. DC
JACK
TUNER PACK 6P CONNECTOR
MECHANISM
CHASSIS
EARTH
C309
GRY
WHT
YEL
BLU
RED
BLK
MAIN P.C.BOARD
J001
PHONES I
JACK
D902
BATTERY
INDICATOR
S100
TAPE SELECT
SWITCH
S400
DOLBY
SWITCH
WHT
RED
WHT
RED
ORG
BLU
YEL
MOTOR
R391
VOLUME P.C.BOARD
YEL
BRN
BRN
GRN
YEL
RED
BRN
ORG
REVERSE SELECT
SWITCH
S200
MUTING
SWITCH
S300
PLAYBACK HEAD

Q301

1	2	3	4	5	6	7	8
1.4V	1.4V	1.4V	1.4V	0V	2.5V	1.5V	0V
3V	5V	2.5V	2.3V	3V	1.4V	1.4V	1.4V
9	10	11	12	13	14	15	16

CAUTIONS
- ⊟ Chip Capacitor
- ⩘ Chip Resistor
- ⊡ Chip Transisor

This P.C.Board has dual Patterns. Parts printed in Red are connected to top Patterns (Red patterns), So they can be checked From top side.

Q905

E	3V
C	2.5V
B	2.3V

Q451

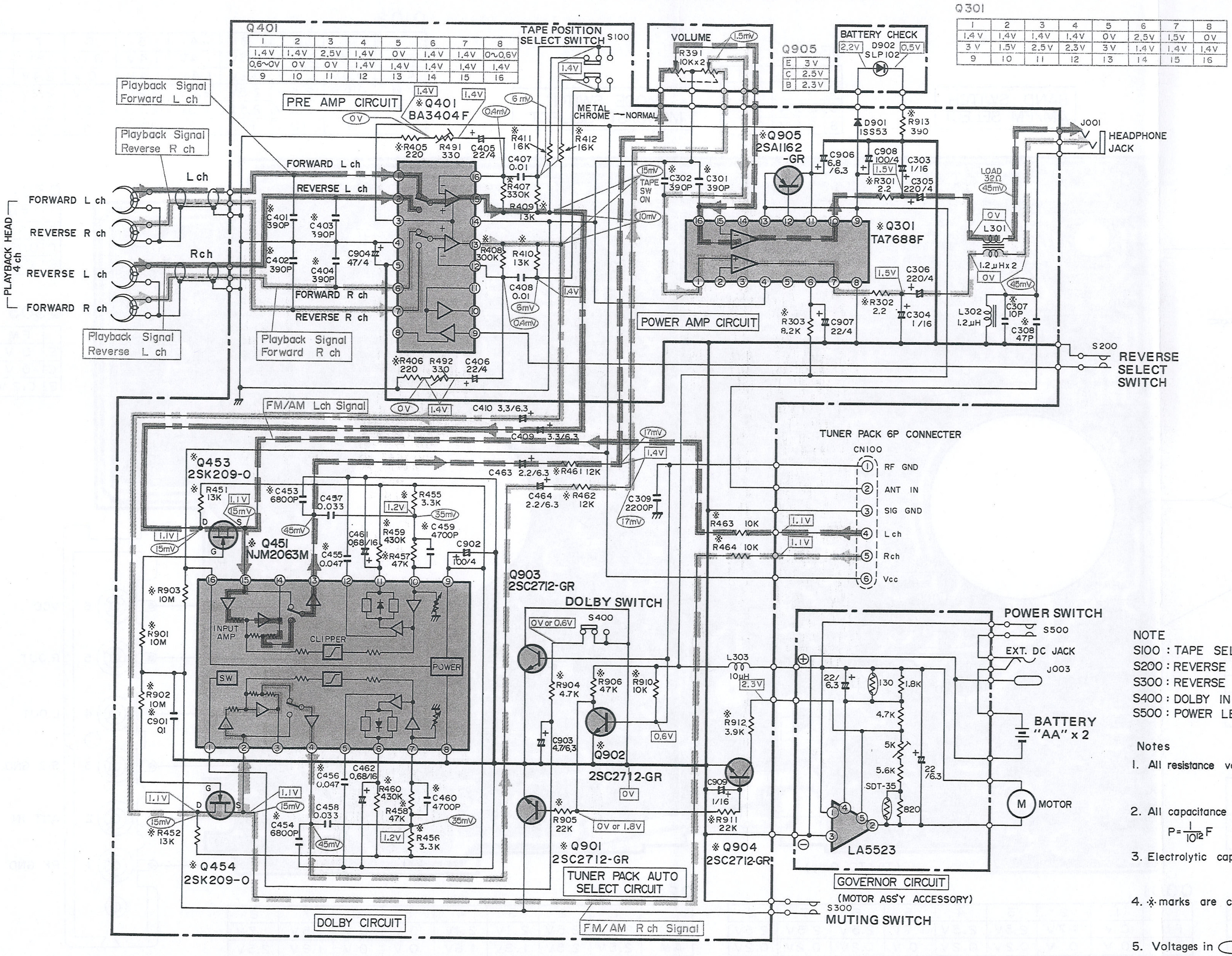
1	2	3	4	5	6	7	8
0.6~0V	1.1V	1.2V	1.2V	1.2V	1V	1.2V	0V
1.2V	1.2V	1V	1.2V	1.2V	1.2V	1.1V	2.5V
9	10	11	12	13	14	15	16

Q401

1	2	3	4	5	6	7	8
1.4V	1.4V	2.5V	1.4V	0V	1.4V	1.4V	0~0.6V
0.6~0V	0V	0V	1.4V	1.4V	1.4V	1.4V	1.4V
9	10	11	12	13	14	15	16

8-1. SCHEMATIC DIAGRAM

—CASSETTE PLAYER SECTION—


PLAYBACK HEAD 4 ch
FORWARD L ch
REVERSE R ch
REVERSE L ch
FORWARD R ch
L ch
R ch
Playback Signal Forward L ch
Playback Signal Reverse R ch
Playback Signal Reverse L ch
Playback Signal Forward R ch
PRE AMP CIRCUIT
※Q401 BA3404F
TAPE POSITION SELECT SWITCH S100
METAL CHROME
NORMAL
VOLUME
R391 10K×2
BATTERY CHECK
D902 SLP102
D901 1SS53
R913 390
※Q905 2SA1162-GR
※Q301 TA7688F
POWER AMP CIRCUIT
J001 HEADPHONE JACK
LOAD 32Ω
L301
L302 1.2μH
S200 REVERSE SELECT SWITCH
FM/AM Lch Signal
TUNER PACK 6P CONNECTER
CN100
① RF GND
② ANT IN
③ SIG GND
④ L ch
⑤ R ch
⑥ Vcc
※Q453 2SK209-O
※Q451 NJM2063M
INPUT AMP
CLIPPER
SW
POWER
Q903 2SC2712-GR
DOLBY SWITCH
S400
Q902 2SC2712-GR
※Q901 2SC2712-GR
TUNER PACK AUTO SELECT CIRCUIT
※Q904 2SC2712-GR
※Q454 2SK209-O
DOLBY CIRCUIT
FM/AM R ch Signal
POWER SWITCH S500
EXT. DC JACK J003
BATTERY "AA" × 2
MOTOR
LA5523
GOVERNOR CIRCUIT
(MOTOR ASS'Y ACCESSORY)
S300 MUTING SWITCH

Q401

1	2	3	4	5	6	7	8
1.4V	1.4V	2.5V	1.4V	0V	1.4V	1.4V	0~0.6V
0.6~0V	0V	0V	1.4V	1.4V	1.4V	1.4V	1.4V
9	10	11	12	13	14	15	16

Q905

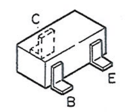
E	3V
C	2.5V
B	2.3V

Q301

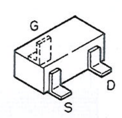
1	2	3	4	5	6	7	8
1.4V	1.4V	1.4V	1.4V	0V	2.5V	1.5V	0V
3V	1.5V	2.5V	2.3V	3V	1.4V	1.4V	1.4V
9	10	11	12	13	14	15	16

Q451

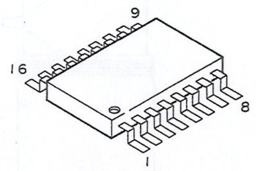
1	2	3	4	5	6	7	8
0.6~0V	1.1V	1.2V	1.2V	1.2V	1V	1.2V	0V
1.2V	1.2V	1V	1.2V	1.2V	1.2V	1.1V	2.5V
9	10	11	12	13	14	15	16



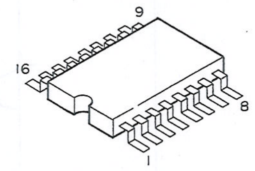
2SA1162-GR
2SC2712-GR



2SK209-O



BA3404F
NJM2063M



TA7688F

NOTE POSITION
S100 : TAPE SELECT SWITCH-------NORMAL
S200 : REVERSE SELECT SWITCH-------- OFF
S300 : REVERSE MUTING SWITCH------- OFF
S400 : DOLBY IN-OUT SWITCH--------- OUT
S500 : POWER LEAF SWITCH----------- OFF

Notes

1. All resistance values are indicated in ohms. K=1000 Ω
2. All capacitance values are indicated in microfarads.

   $P=\frac{1}{10^{12}}F$
3. Electrolytic capacitor indicates ☐/☐ Working Voltage (V) Capacitance (μF)
4. ※ marks are chip parts
5. Voltages in ○ are AC values measured with digital voltmeter while test tape ATT-111 (3KHz) is being reproduced. Input ... 100KΩ TAPE switch (S100) in OFF

7-3. ELECTRICAL PARTS LOCATIONS

—TUNER PACK SECTION—

Q102

	1	2	3	4	5	6	7	8
FM	0.05V	0.05V	2.5V	1.4V	1.4V	0.1V	1.5V	0V
AM	0.9V	0.9V	0.2V	1.4V	1.4V	0V	2.4V	0V
FM	0.9V	2.5V	2.5V	2.5V	2.2V	2.2V	2.2V	2.5V
AM	1.1V	2.5V	2.5V	2.5V	2.1V	2.2V	2.4V	2.5V
	9	10	11	12	13	14	15	16

Q302

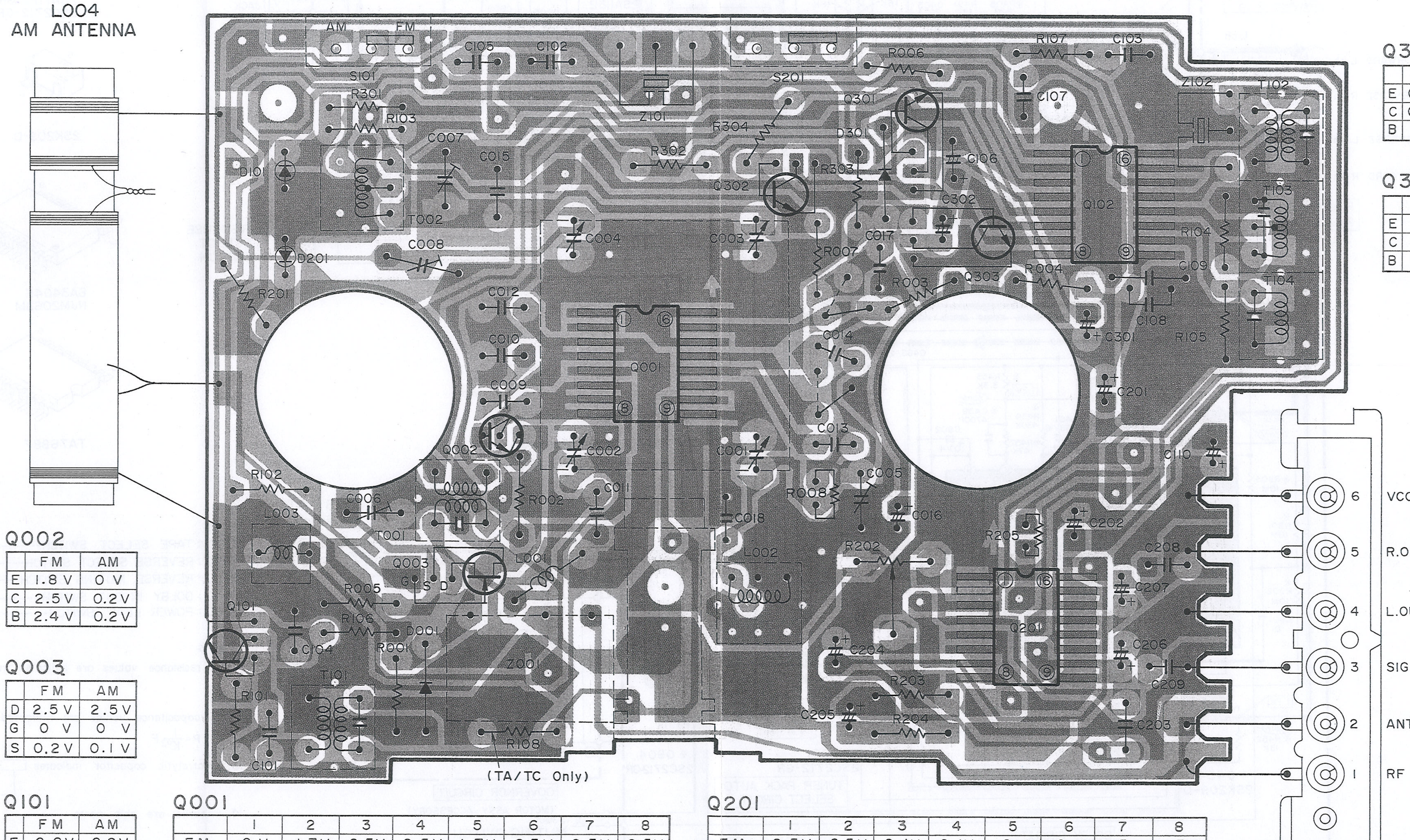
	FM	AM
E	0V	0V
C	0.05V	1.7V
B	0.6V	0.2V

Q301

	FM	AM
E	0.05V	1.7V
C	0.05V	1.7V
B	0.6V	2.2V

Q303

	FM	AM
E	0V	0V
C	0V	0V
B	0.2V	0.6V


BAND SWITCH AM/FM SELECT
MODE SWITCH MONO/ST SELECT
L004 AM ANTENNA
AM
FM
S101
S201
C105
C102
R301
R103
C007
C015
D101
T002
C008
D201
R201
Z101
R304
R302
Q302
R303
D301
Q301
C106
C302
C017
R006
R107
C103
C107
Z102
T102
Q102
T103
R104
C109
T104
C108
R105
C301
C004
C003
Q001
C012
C010
C009
Q002
C002
C001
R007
Q303
R003
R004
C014
C013
C005
R008
C016
C201
C110
R102
L003
C006
T001
R002
C011
C018
L002
R202
R205
C202
C208
C207
Q201
C206
C209
C204
R203
C205
R204
C203
Q003
G S D
L001
R005
R106
R001
D001
Z001
Q101
C104
T101
R101
C101
R108
(TA/TC Only)
6 VCC
5 R.OUT
4 L.OUT
3 SIG GND
2 ANT IN
1 RF GND
TUNER PACK 6P CONNECTOR P001

Q002

	FM	AM
E	1.8V	0V
C	2.5V	0.2V
B	2.4V	0.2V

Q003

	FM	AM
D	2.5V	2.5V
G	0V	0V
S	0.2V	0.1V

Q101

	FM	AM
E	0.8V	0.2V
C	2.4V	0.2V
B	1.3V	0.7V

Q001

	1	2	3	4	5	6	7	8
FM	0V	1.7V	2.5V	2.5V	1.7V	2.5V	2.5V	2.5V
AM	0V	0V	0.2V	0.2V	0V	0.2V	0.2V	0.2V
FM	0V	2.5V	0V	2.2V	0V	0V	0.3V	0V
AM	0V	0.2V	0V	0.2V	0V	0V	0.4V	0V
	9	10	11	12	13	14	15	16

Q201

	1	2	3	4	5	6	7	8
FM	2.5V	2.5V	2.1V	2.1V	0V	0V	1.5V	1.7V
AM	2.5V	2.5V	1.8V	1.8V	0V	0V	1.8V	2.5V
FM	0.9V	0.9V	0.9V	0.9V	0.9V	0.6V	0.6V	1.7V
AM	0.9V	0.9V	0.9V	0.9V	0.9V	0.6V	0.6V	1.7V
	9	10	11	12	13	14	15	16

8-2. SCHEMATIC DIAGRAM

—TUNER PACK SECTION—

Q001

	1	2	3	4	5	6	7	8
FM	0V	1.7V	2.5V	2.5V	1.7V	2.5V	2.5V	2.5V
AM	0V	0V	0.2V	0.2V	0V	0.2V	0.2V	0.2V
FM	0V	2.5V	0V	2.2V	0.4V	0V	1.3V	0V
AM	0V	0.2V	0V	0.2V	0.4V	0V	1.3V	0V
	9	10	11	12	13	14	15	16

Q101

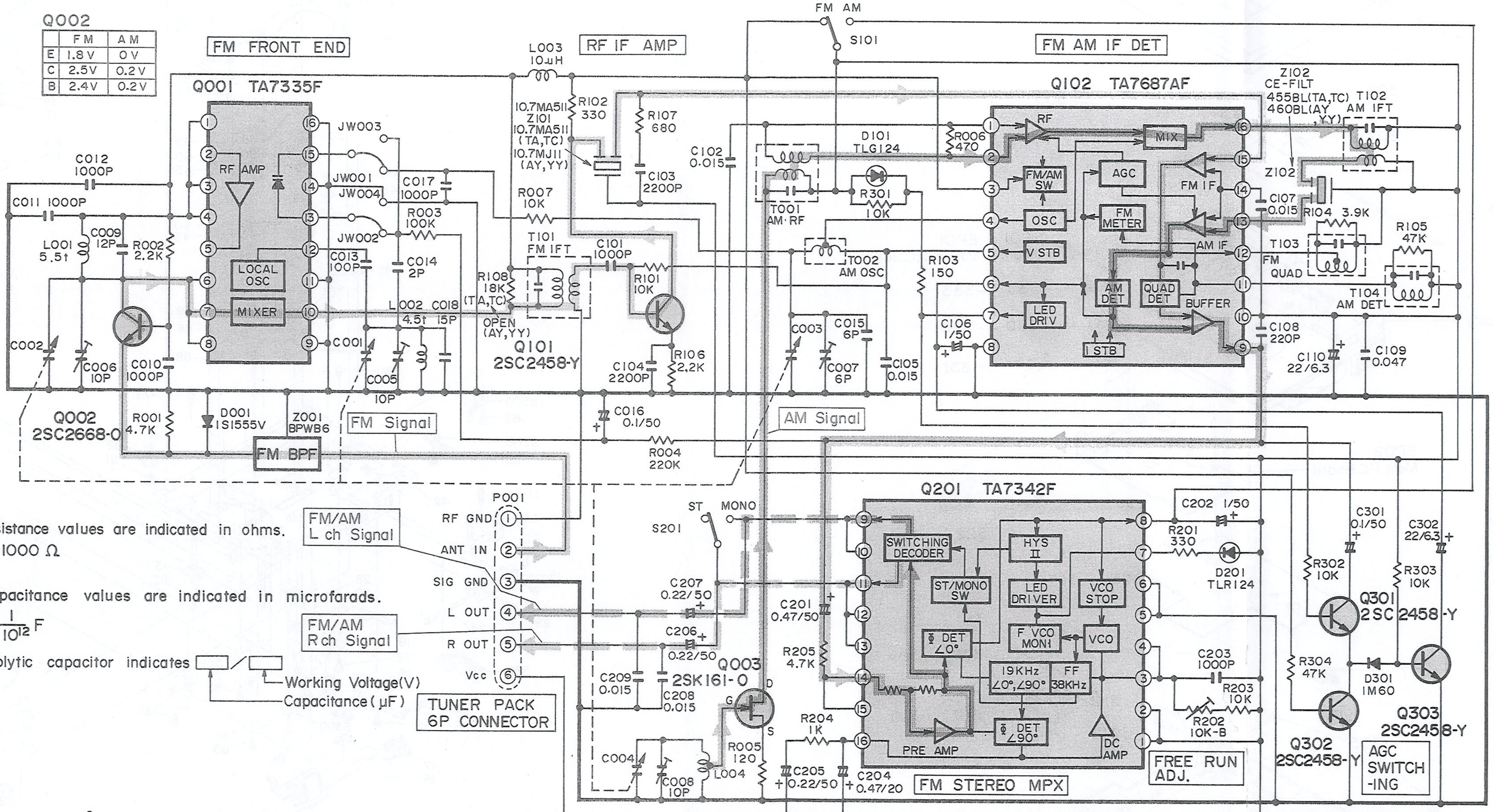
	FM	AM
E	0.8V	0.2V
C	2.4V	0.2V
B	1.3V	0.7V

Q102

	1	2	3	4	5	6	7	8
FM	0.05V	0.05V	2.5V	1.4V	1.4V	0.1V	1.5V	0V
AM	0.9V	0.9V	0.2V	1.4V	1.4V	0V	2.4V	0V
FM	0.9V	2.5V	2.5V	2.5V	2.2V	2.2V	2.2V	2.5V
AM	1.1V	2.5V	2.5V	2.5V	2.1V	2.2V	2.4V	2.5V
	9	10	11	12	13	14	15	16

Q002

	FM	AM
E	1.8V	0V
C	2.5V	0.2V
B	2.4V	0.2V


FM FRONT END
Q001 TA7335F
RF AMP
LOCAL OSC
MIXER
JW003
JW001
JW004
JW002
C012 1000P
C011 1000P
L001 5.5t
C009 12P
R002 2.2K
C002
C006 10P
C010 1000P
C017 1000P
R003 100K
C013 100P
C014 2P
C001
C005 10P
L002 4.5t
C018 15P
Q002 2SC2668-O
R001 4.7K
D001 1S1555V
Z001 BPWB6
FM BPF
FM Signal
RF IF AMP
L003 10μH
10.7MA5II Z101 10.7MA5II (TA,TC) 10.7MJ11 (AY,YY)
R102 330
R107 680
C103 2200P
R007 10K
T101 FM IFT
C101 1000P
R101 10K
R108 18K (TA,TC) OPEN (AY,YY)
Q101 2SC2458-Y
C104 2200P
R106 2.2K
C016 0.1/50
R004 220K
FM AM
S101
C102 0.015
T001 AM·RF
D101 TLG124
R301 10K
T002 AM OSC
R103 150
C003
C007 6P
C015 6P
C105 0.015
C106 1/50
AM Signal
FM AM IF DET
Q102 TA7687AF
R006 470
RF
MIX
FM/AM SW
AGC
OSC
FM METER
V STB
FM IF
AM IF
AM DET
QUAD DET
BUFFER
LED DRIV
I STB
Z102 CE-FILT 455BL(TA,TC) 460BL(AY,YY)
T102 AM IFT
Z102
C107 0.015
R104 3.9K
T103 FM QUAD
R105 47K
T104 AM DET
C108 220P
C110 22/6.3
C109 0.047
P001
RF GND ①
ANT IN ②
SIG GND ③
L OUT ④
R OUT ⑤
Vcc ⑥
FM/AM L ch Signal
FM/AM R ch Signal
TUNER PACK 6P CONNECTOR
ST MONO
S201
C207 0.22/50
C206 0.22/50
C209 0.015
C208 0.015
Q003 2SK161-O
G D S
C004
C008 10P
L004
R005 120
AM RF AMP
Q201 TA7342F
SWITCHING DECODER
HYS II
ST/MONO SW
LED DRIVER
VCO STOP
Φ DET ∠0°
F VCO MONI
VCO
19KHz ∠0°,∠90°
FF 38KHz
PRE AMP
Φ DET ∠90°
DC AMP
C201 0.47/50
R205 4.7K
R204 1K
C205 0.22/50
C204 0.47/20
FM STEREO MPX
C202 1/50
R201 330
D201 TLR124
C203 1000P
R203 10K
R202 10K-B
FREE RUN ADJ.
C301 0.1/50
C302 22/6.3
R302 10K
R303 10K
Q301 2SC2458-Y
R304 47K
D301 1M60
Q302 2SC2458-Y
Q303 2SC2458-Y
AGC SWITCH -ING
FM MUTING

Notes

1. All resistance values are indicated in ohms. K=1000 Ω

2. All capacitance values are indicated in microfarads. $P=\frac{1}{10^{12}}F$

3. Electrolytic capacitor indicates ☐ / ☐ —Working Voltage(V) —Capacitance(μF)

Q003

	FM	AM
D	2.5V	2.5V
G	0V	0V
S	0.2V	0.1V

Q201

	1	2	3	4	5	6	7	8
FM	2.5V	2.5V	2.1V	2.1V	0V	0V	1.5V	1.7V
AM	2.5V	2.5V	1.8V	1.8V	0V	0V	1.8V	2.5V
FM	0.9V	0.9V	0.9V	0.9V	0.9V	0.6V	0.6V	1.7V
AM	0.9V	0.9V	0.9V	0.9V	0.9V	0.6V	0.6V	1.7V
	9	10	11	12	13	14	15	16

Q301

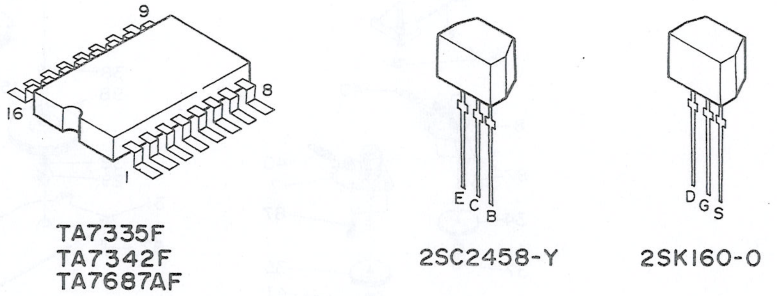
	FM	AM
E	0.05V	1.7V
C	0.05V	1.7V
B	0.6V	2.2V

Q303

	FM	AM
E	0V	0V
C	0V	0V
B	0.2V	0.6V

Q302

	FM	AM
E	0V	0V
C	0.05V	1.7V
B	0.6V	0.2V


9
16
8
1
E C B
D G S

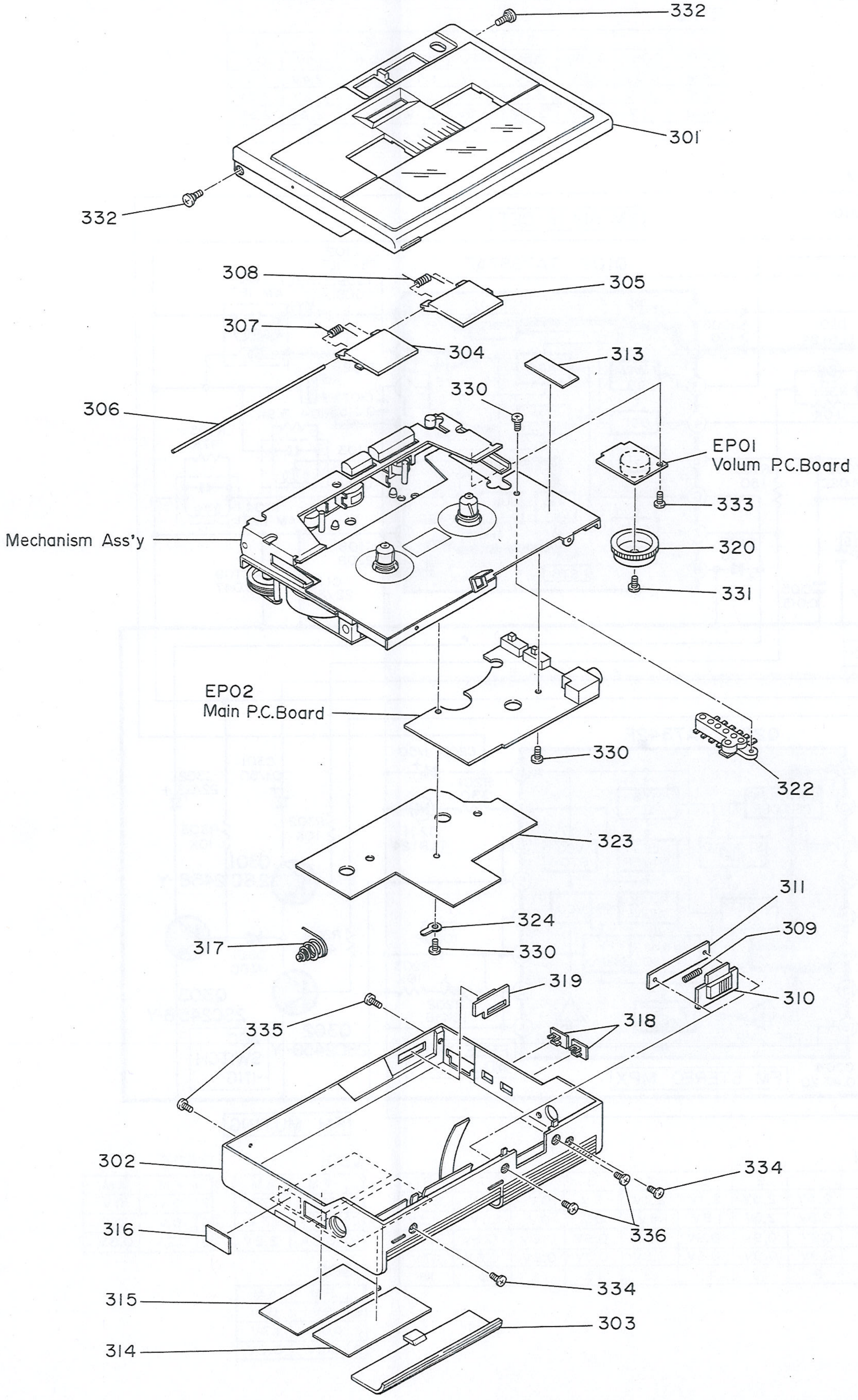
TA7335F
TA7342F
TA7687AF

2SC2458-Y

2SK160-O

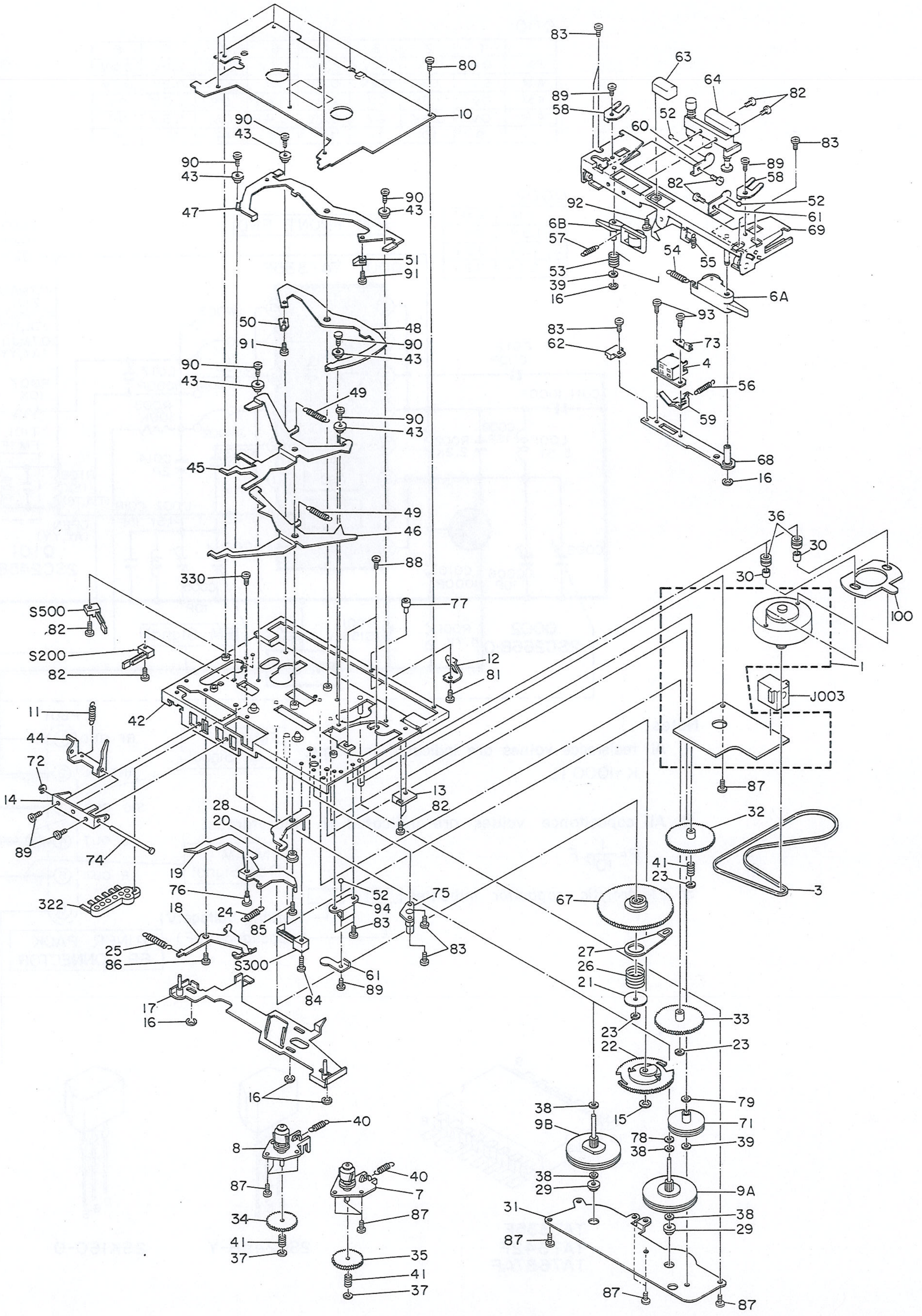
9-1. EXPLODED VIEW CABINET

—CASSETTE PLAYER SECTION—


332
301
332
308
305
307
304
313
306
330
EP01
Volum P.C.Board
333
Mechanism Ass'y
320
331
EP02
Main P.C.Board
330
322
323
311
324
309
317
330
319
310
318
335
302
334
336
316
334
315
303
314

NOTE: Parts excluded in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering they items.

10. EXPLODED VIEW MECHANISM


83
80
63
64
82
10
89
58
52
60
83
90
43
90
43
89
58
82
52
61
69
47
90
43
92
6B
57
54
55
51
91
53
39
16
6A
93
50
48
83
62
91
90
43
73
4
90
43
49
56
90
43
59
45
68
16
49
46
36
30
88
30
330
77
100
S500
82
S200
82
12
81
1
11
42
J003
44
72
13
82
87
14
28
20
32
89
74
41
23
19
76
18
322
52
94
75
83
3
24
85
67
25
86
S300
83
61
89
84
27
26
21
17
16
33
23
22
23
16
40
38
9B
15
79
71
8
78
38
39
40
7
87
38
29
9A
87
31
34
87
38
29
41
37
35
41
37
87
87

NOTE: Parts excluded in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering they items.

11-1. PARTS LIST

— CASSETTE PLAYER SECTION —

Symbol No.	Part No.	Description
MECHANISM PARTS		
1	22125354	Motor Ass'y
3	25755573	Belt, Main
4	22217439	Play Head, HRPT-439
6A	25717560	Pressure Roller Ass'y, Right
6B	25717578	Pressure Roller Ass'y, Left
7	25712445	Reel Plate Ass'y, Right
8	25712444	Reel Plate Ass'y, Left
9A	25717562	Flywheel Ass'y, Right
9B	25717563	Flywheel Ass'y, Left
10	25734482	Mechanism Cover
11	25776571	Spring
12	25779326	Spring
13	25781253	Jack Holder
15	22703118	E Ring, 2ϕ
16	22703117	E Ring, 1.5ϕ
18	25791620	Reverse Release Lever Ass'y
19	25791621	Reverse Operation Lever Ass'y
20	25726677	Boss
21	25754442	Washer
22	25756348	Gear, Reverse Cam
23	25766050	Washer
24	25776565	Spring
25	25776567	Spring
26	25777178	Spring
27	25784051	Lever, Frict
28	25784052	Lever, Reverse Detector
29	25725468	Holder
30	25726714	Spacer, Motor
32	25756346	Gear, FF Relay
33	25756347	Gear, Play Relay
34	25776351	Gear, Play, Left
35	25756352	Gear, Play, Right
36	25761492	Cushion, Motor
37	25766079	Washer, 1.2ϕ
38	25766082	Washer, 2ϕ
39	25766100	Washer, 2.1ϕ
40	25776566	Spirng
41	25777268	Spring
42	25791622	Main Chassis Ass'y
44	25748944	Lever, Play
45	25748945	Lever, Stop
46	25748946	Lever, Switch
47	25748947	Play Cut Lever, Left
48	25748948	Play Cut Lever, Right
49	25776569	Spring
50	25783318	Chip, Play Cut Lever, Right
51	25783319	Chip, Play Cut Lever, Left
52	25757129	Steel Ball
53	25775254	Spring
54	25776580	Spring
55	25776568	Spring
56	25776609	Spring
57	25776572	Spring
58	25779268	Spring, Cassette Holder
59	25779325	Spring, Azimuth
60	25779327	Spring
61	25779328	Spring
62	25783322	Tape Guide
63	25783324	Button, Stop
64	25716312	Button Ass'y
67	25791568	Take-up Gear Ass'y
68	25717567	Head Lever Ass'y
69	25791626	Cassette Holder Ass'y
71	25713579	Pulley Relay Ass'y
72	25766136	Washer
78	25766099	Washer
79	25766135	Washer
80	22707678	Screw, 1.4ϕ x 1.6mm, FLT
81	22707969	Screw, 1.4ϕ x 1.2mm, PAN
82	22707978	Screw, 1.7ϕ x 2.5mm, PAN
83	22707862	Screw, 1.7ϕ x 2mm, PAN
84	22707737	Screw, 1.7ϕ x 6mm, PAN
85	22707496	Screw, 1.4ϕ x 2.5mm, PAN
86	22707971	Screw, 1.4ϕ x 1.8mm, PAN
87	22707832	Screw, 1.4ϕ x 2.5mm, PAN
88	22707970	Screw, 1.7ϕ x 3mm, PAN
89	22707830	Screw, 1.7ϕ x 1.6mm, PAN
90	22708134	Screw, 1.7ϕ x 1.9mm, PAN
91	22707967	Screw, 1.4ϕ x 1.2mm, PAN
93	22707968	Screw, 2ϕ x 2.5mm, PAN

CAUTION:
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
	CABINET PARTS	
301	25883521	Front Cabinet Ass'y
302	25883522	Back Cabinet Ass'y
303	25882920	Battery Cover
304	25886330	Button A
305	25886331	Button B
306	25847271	Button Shaft
307	25847272	Spring, Button
308	25847279	Spring, Button B
309	25777149	Spring, Lock
310	25886332	Button, Lock
311	25846594	Button Holder
313	22900142	Label, Caution
314	22900430	Name Label
315	22900330	Label, Dolby
317	25777236	Spring, Battery
318	25837983	Knob, Tape Select, Dolby NR
319	25837984	Knob, Reverse Select
320	25837985	Knob, Volume
322	25781251	Connector
330	22707612	Screw, 1.4ϕ x 3mm, PAN
331	22707680	Screw, 1.7ϕ x 3mm, BID
332	22707914	Screw, Special
333	22707862	Screw, 1.7ϕ x 2mm, PAN
334	22707725	Screw, 1.7ϕ x 2.5mm, PAN
335	22707831	Screw, 1.7ϕ x 2.5mm, PAN
336	22707832	Screw, 1.4ϕ x 2.5mm, PAN

Symbol No.	Part No.	Description
	TRANSISTORS, IC'S & DIODES	
Q301	B0356885	IC, TA7688F
Q401	22117162	IC, BA3404F
Q451	22117422	IC, NJM2063AM
Q435, 454	A6043330	Transistor, 2SK209-Y
Q901, 902, 903	A6335480	Transistor, 2SC2712-GR
Q905	A6541140	Transistor, 2SA1162-GR
D901	22115533	Diode, 1SS53
D902	22115782	Diode, LED, SLP102B-01
	ELECTRICAL PARTS	
S100	22196181	Switch, Slide, Tape Select
S200	22196222	Switch, Leaf, AUTO/ REVERSE
S300	22196221	Switch, Leaf, Muting
S400	22196182	Switch, Slide, Dolby NR
⚠ S500	22196222	Switch, Leaf, Power
J001	22163947	Jack, 3.5ϕ, Stereo Headphone
⚠ J003	22163956	Jack, DC Power
L301	22292153	Coil, Choke
L302	22241068	Coil, Choke
L303	22241070	Coil, Choke
EP01	22192270	P.C. Board, Volume
EP02	22192346	P.C. Board Ass'y, Main
	CAPACITORS D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%, Z = +80–20% ABBREVIATIONS: BL = Barrier Layer, EL = Electrolytic, PS = Polystylene, TT = Tantalum	
C301, 302	22353391	Chip, 390pF, 50V, K
C303, 304	22490068	TT, 1mfd, 16V
C305, 306	22440516	EL, 220mfd, 4V
C307	22351100	Chip, 10pF, 50V, D
C308	22351470	Chip, 47pF, 50V, K
C309	22360367	CD, 2200pF, 50V, J
C401, 402, 403, 404	22353391	Chip, 390pF, 50V, K
C405, 406	22440540	EL, 22mfd, 4V
C407, 408	22380266	PS, 0.01mfd, 50V, J

Symbol No.	Part No.	Description
C409, 410	22490071	TT, 3.3mfd, 6.3V
C453, 454	22353682	Chip, 6800pF, 50V, K
C455, 456	22354473	Chip, 0.047mfd, 25V, M
C457, 458	22380267	PS, 0.033mfd, 50V, J
C459, 460	22352472	Chip, 4700pF, 50V, Z
C461, 462	22490179	TT, 0.68mfd, 16V
C463, 464	22490069	TT, 2.2mfd, 6.3V
C901	22352104	Chip, 0.1mfd, 25V, Z
C902	22440517	EL, 100mfd, 4V
C903	22490078	TT, 4.7mfd, 6.3V
C904	22440542	EL, 47mfd, 4V
C906	22490080	TT, 6.8mfd, 6.3V
C907	22440540	EL, 22mfd, 4V
C908	22440517	EL, 100mfd, 4V
C909	22490068	TT, 1mfd, 16V

RESISTORS

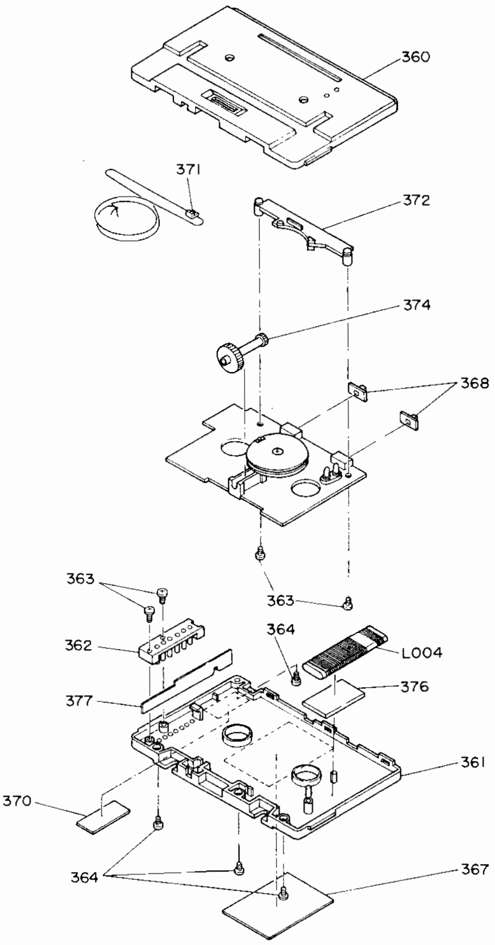
Chip Resistors are Metal Oxide Resistor 1/8W, ±5%, otherwise are Carbon Film 1/8W, ±5%, unless otherwise noted. 1K ohm = 1000 ohm, 1M ohm = 1000000 ohm

Symbol No.	Part No.	Description
R301, 302	22531229	2.2ohm, 10%, Chip
R303	22531822	8.2K ohm, Chip
R391	22611405	10K ohm, Variable Volume
R405, 406	22531221	220 ohm, Chip
R407, 408	22531304	300K ohm, Chip
R409, 410	22531133	13K ohm, Chip
R411, 412	22531163	16K ohm, Chip
R451, 452	22531133	13K ohm, Chip
R455, 456	22531332	3.3K ohm, Chip
R457, 458	22531473	47K ohm, Chip
R459, 460	22531434	430K ohm, Chip
R461, 462	22531123	12K ohm, Chip
R463, 464	22531103	10K ohm, Chip
R491, 492	22658672	330 ohm, Semi-fixed Variable
R901, 902, 903	22531106	10M ohm, Chip
R904	22531472	4.7K ohm, Chip
R905	22531223	22K ohm, Chip
R906	22531473	47K ohm, Chip
R910	22531103	10K ohm, Chip
R911	22531223	22K ohm, Chip
R912	22531392	3.9K ohm, Chip
R913	22531391	390 ohm, Chip

Symbol No.	Part No.	Description

9-2. CABINET EXPLODED VIEW

– TUNER PACK SECTION –
(RP-AF6)



NOTE: Parts excluded in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering they items.

11-2. PARTS LIST – TUNER PACK SECTION –

Symbol No.	Part No.	Description
CABINET PARTS		
360	22881315	Cabinet, Upper
361	22882116	Cabinet, Bottom
362	22161726	Contact 6P
363	22707638	Screw, 1.7ϕ x 4.5mm, BID, BLK
364	22707662	Screw, Special
367	22866255	Name Label (TE, AY)
367	22866257	Name Label (TA, TC)
368	22884242	Cap, Knob
370	22900142	Label, Caution
371	22741393	Pointer

Symbol No.	Part No.	Description
TRANSISTOR, ICS & DIODES		
Q001	B0325275	IC, TA7335F
Q002	A6332530	Transistor, 2SC2668-O
Q003	A6042620	Transistor, FET, 2SK161-O
Q101	A6332430	Transistor, 2SC2458-Y
Q102	B0356876	IC, TA7687AF
Q201	B0325335	IC, TA7342F
Q301, 302, 303	A6332430	Transistor, 2SC2458-Y
D001	A7246703	Diode, 1S1555V
D101	A8606201	Diode, LED, TLG-124A
D201	A8601150	Diode, LED, TLR-124
D301	22115863	Diode, 1M60

Symbol No.	Part No.	Description

ELECTRICAL PARTS

Symbol No.	Part No.	Description
L001	22295141	Coil, LH010-5.5T
L002	22295151	Coil, LH010-AF2
L003	22241067	Coil, CH1067
L004	22242918	Coil, AM Antenna
T001	22264864	IF Transformer, AM, RF
T002	22245414	Coil, AM
T101	22265837	IF Transfoemer, FM
T102	22264865	IF Transformer, AM
T103	22267419	IF Transformer, FM, Guad
T104	22266388	IF Transformer, AM, Detector
Z001	22153222	Filter, FM, Band-Pass, BPMB6
Z101	22153260	Filter, Ceramic, FM, 10.7MA511 (TA, TC)
Z101	22153261	Filter, Ceramic, FM, 10.7MJ11 (TE, AY)
Z102	22153206	Filter, Ceramic, AM, TER-455BL (TA, TC)
Z102	22153220	Filter, Cermaic, AM, TER-460BL (TE, AY)
S101 ∿ 102	22196060	Switch, AM, FM Select
S201 ∿ 202	22196060	Switch, MONO, ST Select

CAPACITORS

D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%

ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic,
TT = Tantalum, BL = Barrier Layer,
PS = Polystylene

Symbol No.	Part No.	Description
C001 ∿ 004	22308560	Poly Variable Capacitor
C005	22309191	Trimmer, 10pF
C006	22309191	Trimmer, 10pF
C007	22309190	Trimmer, 6pF
C008	22309159	Trimmer, 10pF
C009	22361120	CD, 12pF, 50V, D
C010, 011, 012	22349102	CD, 1000pF, 50V, K
C013	22362101	CD, 100pF, 50V, K
C014	22360478	CD, 2pF, 50V, D
C015	22361609	CD, 6pF, 50V, D
C016	22440439	EL, 0.1mfd, 50V
C017	22349102	CD, 1000pF, 50V, K
C018	22360177	CD, 15pF, 50V, J

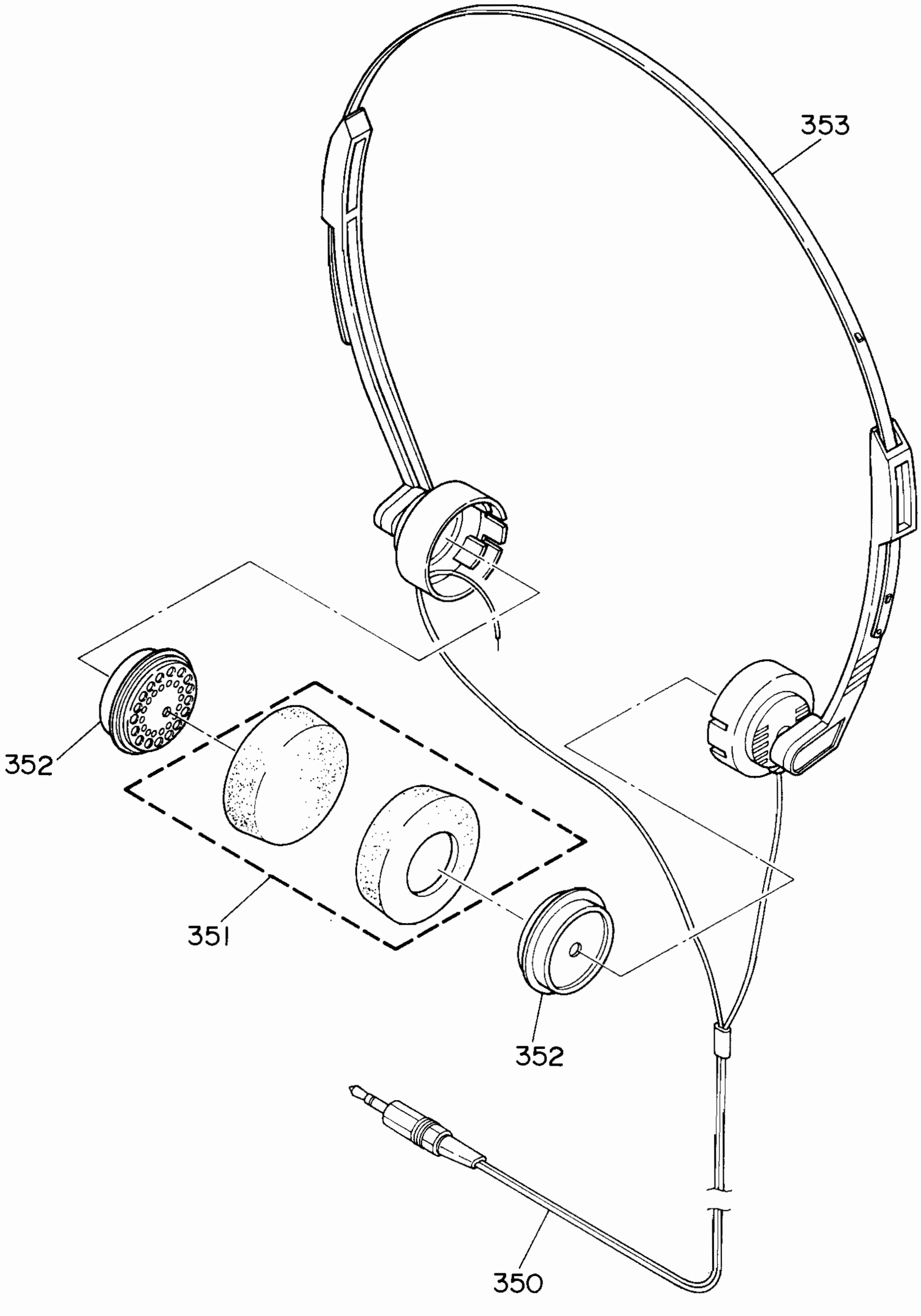
Symbol No.	Part No.	Description
C101	22349102	CD, 1000pF, 50V, K
C102	22360605	BL, 0.015mfd, 25V, M
C103, 104	22360723	BL, 2200pF, 25V, M
C105	22360605	BL, 0.015mfd, 25V, M
C106	22440441	EL, 1mfd, 50V
C107	22360605	BL, 0.015mfd, 25V, M
C108	22349221	CD, 220pF, 50V, K
C109	22360608	BL, 0.047mfd, 25V, M
C110	22440277	EL, 22mfd, 6.3V
C201	22440440	EL, 0.47mfd, 50V
C202	22440441	EL, 1mfd, 50V
C203	22380071	PS, 1000pF, 125V, J
C204	22490106	TT, 0.47mfd, 20V
C205, 206, 207	22440320	EL, 0.22mfd, 50V
C208, 209	22360605	BL, 0.015mfd, 25V, M
C301	22440439	EL, 0.1mfd, 50V
C302	22440277	EL, 22mfd, 6.3V

RESISTORS

All resistors are carbon film 1/6W, ±5%, unless otherwise noted. 1K ohm = 1000 ohm, 1M ohm = 1000000 ohm

Symbol No.	Part No.	Description
R001	22584472	4.7K ohm
R002	22584222	2.2K ohm
R003	22584104	100K ohm
R004	22584224	220K ohm
R005	22584121	120 ohm
R006	22584471	470 ohm
R007	22584103	10K ohm
R101	22584103	10K ohm
R102	22584331	330 ohm
R103	22584151	150 ohm
R104	22584392	3.9K ohm
R105	22584473	47K ohm
R106	22584222	2.2K ohm
R107	22584681	680 ohm
R108	22584183	18K ohm (TA, TC)
R201	22584331	330 ohm
R202	22658654	10K ohm, Semi-fixed Variable
R203	22584103	10K ohm
R204	22584102	1K ohm
R205	22570402	4.7K ohm, 1/16W, Metal Film
R301, 302, 303	22584103	10K ohm
R304	22584473	47K ohm

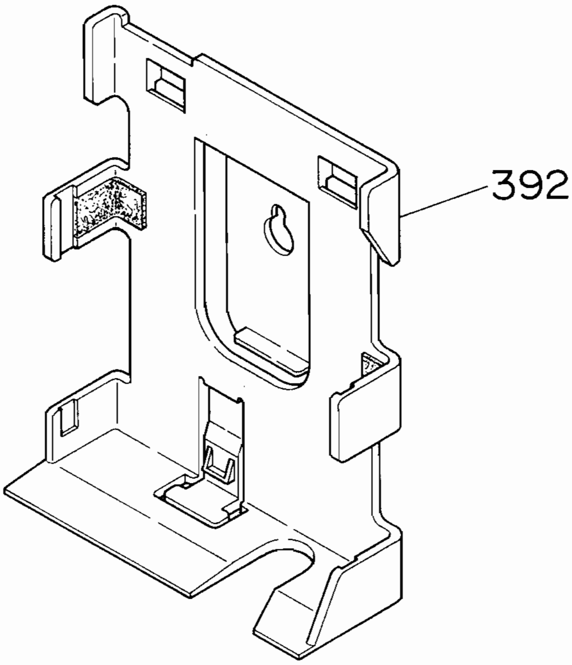
12. HEADPHONE EXPLODED VIEW



– HEADPHONE PARTS SECTION –
(HR-M7)

Symbol No.	Part No.	Description
350	22810112	Cord with Plug
351	22810113	Ear Pad Set
352	22810114	Housing
353	22810115	Head Band Ass'y

13. UNIT HOLDER EXPLODED VIEW



UNIT HOLDER ASS'Y SECTION

Symbol No.	Part No.	Description
392	22991112	Unit Holder Ass'y

ACCESSORIES

Symbol No.	Part No.	Description
AC01	22904172	Owner's Manual (TA)
AC01	22904181	Owner's Manual (TC)
AC01	22904182	Owner's Manual (AY)
AC01	22904183	Owner's Manual (TE)
AC02	22991102	Belt
AC03	22957583	Caution Sheet
AC04	22957628	Caution Sheet (TA)

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